FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

January 3 to January 9, 2016 (Week 1)

Overall Summary

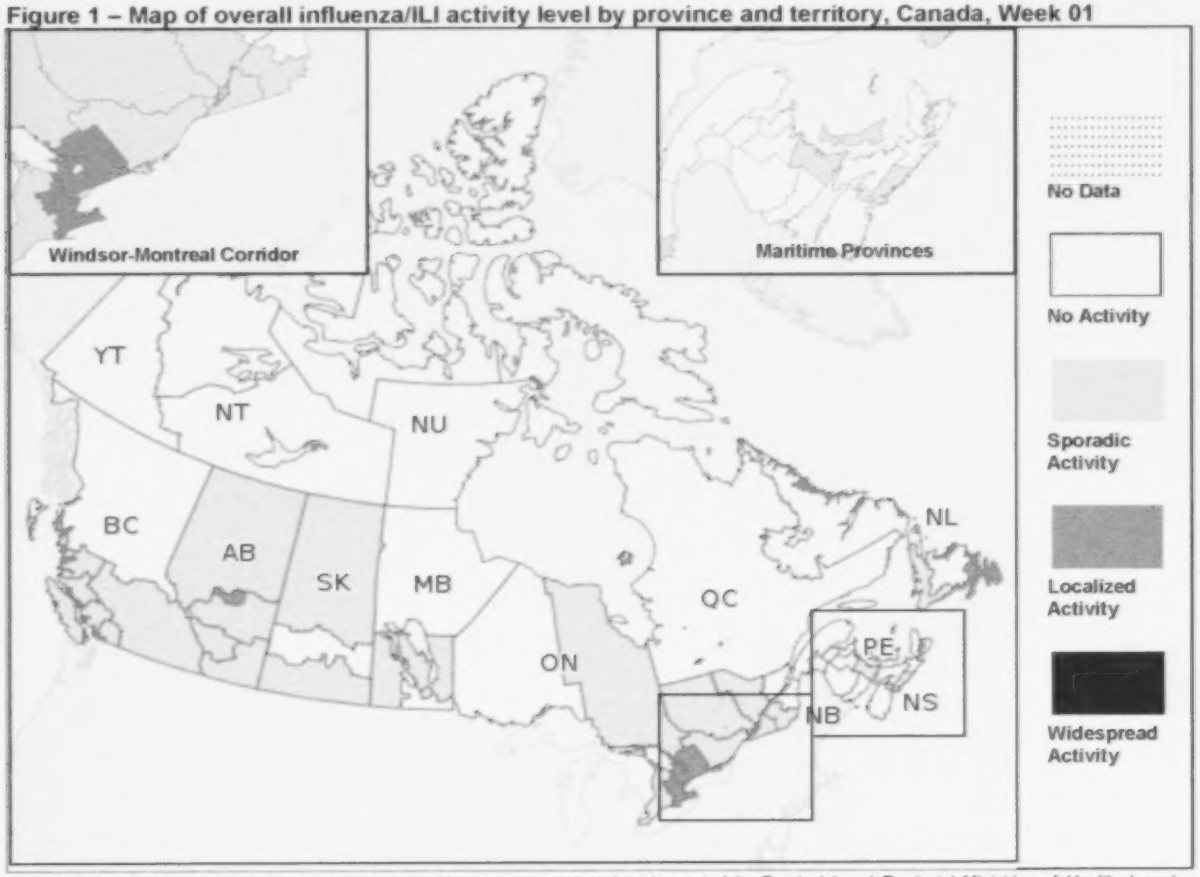
- Overall, in week 01, seasonal influenza activity increased in Canada.
- Laboratory detections of influenza increased but remain below expected levels for this time of the year.
- In week 01, there was an increase in the number of laboratory detections and hospitalizations associated with influenza A(H1N1).
- To date, the majority of influenza laboratory detections and hospitalizations have been in seniors greater than 65 years of age.
- For more information on the flu, see our Flu(influenza) web page.

Are you a primary health care practitioner (General Practitioner, Nurse Practitioner or Registered Nurse) interested in becoming a FluWatch sentinel for the 2015-16 influenza season? Contact us at FluWatch@phac-aspc.gc.ca

Influenza/Influenza-like Illness (ILI) Activity (geographic spread)

In week 01, 25 regions across Canada reported sporadic influenza/ILI activity. Localized activity was reported in four regions in Canada (two in ON, one each in AB and NL).

Figure 1 – Map of overall influenza/ILI activity level by province and territory, Canada, Week 01

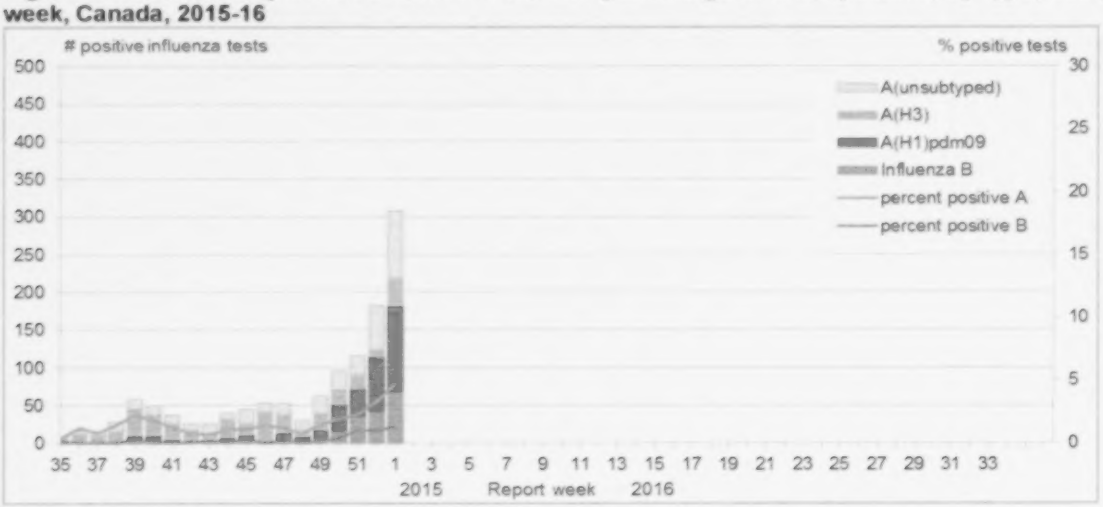


Note: Influenza/ILI activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates and reported outbreaks. Please refer to detailed definitions at the end of the report. Maps from previous weeks, including any retrospective updates, are available in the mapping feature found in the Weekly Influenza Reports.

Laboratory Confirmed Influenza Detections

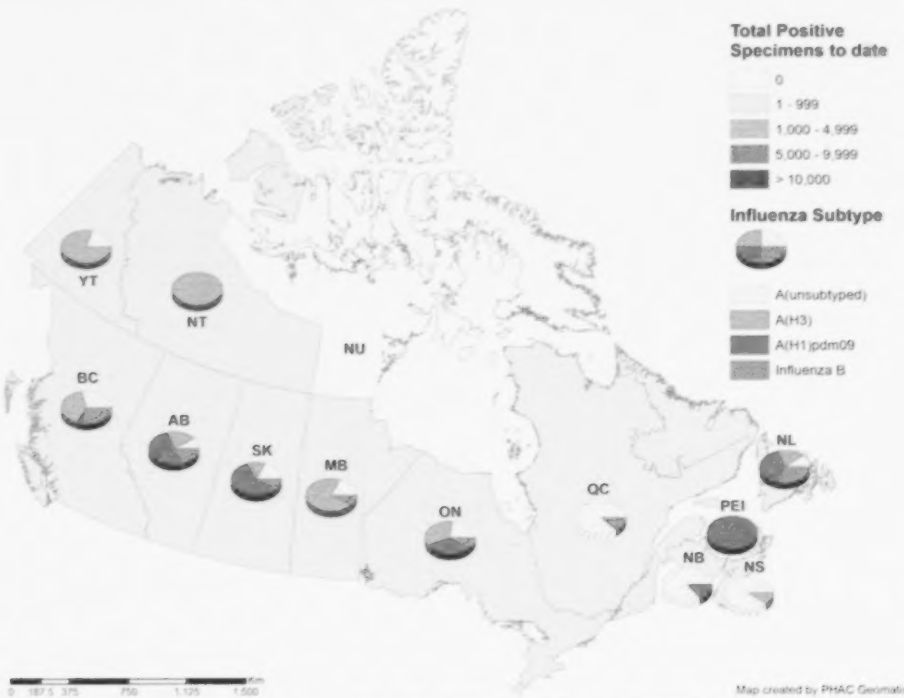
Laboratory confirmed influenza detections continue to increase steadily. The percent positive for influenza increased from 4.3% in week 52 to 6.0% in week 01 (Figure 2). Compared to the previous five seasons, the percent positive (6.0%) reported in week 01 was below the five year average for that week and below expected levels (range 14.3%-33.2%).

Figure 2 – Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, 2015-16



In week 01, there were 306 positive influenza tests reported. Similar to the previous two weeks, the majority of subtyped influenza A viruses detected in Canada were influenza A(H1N1). Influenza A(H1N1) was the most common influenza A subtype detected in AB, SK, ON, NB, and PE in week 01. To date, 83% of influenza detections have been influenza A and among those subtyped approximately half have been influenza A(H3N2) [52% (344/659)].

Figure 3 – Cumulative numbers of positive influenza specimens by type/subtype and province, Canada, 2015-16



Note: Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Cumulative data include updates to previous weeks.

To date this season, detailed information on age and type/subtype has been received for 864 cases. Adults aged 65 years and older accounted for 35% of reported influenza cases (Table 1). Adults aged 65 years and older also represented 47% of reported A(H3N2) cases. Adults aged 20-44 years represented 27% of reported influenza A(H1N1) cases and 24% of reported influenza B cases.

Table 1 – Weekly and cumulative numbers of positive influenza specimens by type, subtype and age-group reported through case-based laboratory reporting[1], Canada, 2015-16

Age groups (years)	Weekly (Jan. 3, 2015 to Jan. 9, 2016)					Cumulative (August 30, 2015 to January 9, 2016)						
	Influenza A				B	Influenza A				B	Total Influenza A and B	
	A Total	A(H1) pdm09	A(H3)	A (UnS)[3]	Total	A Total	A(H1) pdm09	A(H3)	A (UnS)[3]	Total	#	%
<5	11	3	0	8	5	80	29	24	27	20	100	11.6%
5-19	12	1	3	8	5	60	10	30	20	44	104	12.0%
20-44	26	2	3	21	12	118	33	44	41	45	163	18.9%
45-64	18	0	1	17	9	155	31	70	54	38	193	22.3%
65+	23	1	3	19	6	260	16	147	97	40	300	34.7%
Unknown	1	1	0	0	0	3	2	1	0	1	4	0.5%
Total	91	8	10	73	37	676	121	316	239	188	864	100.0%
Percentage[2]	71.1%	8.8%	11.0%	80.2%	28.9%	78.2%	17.9%	46.7%	35.4%	21.8%		

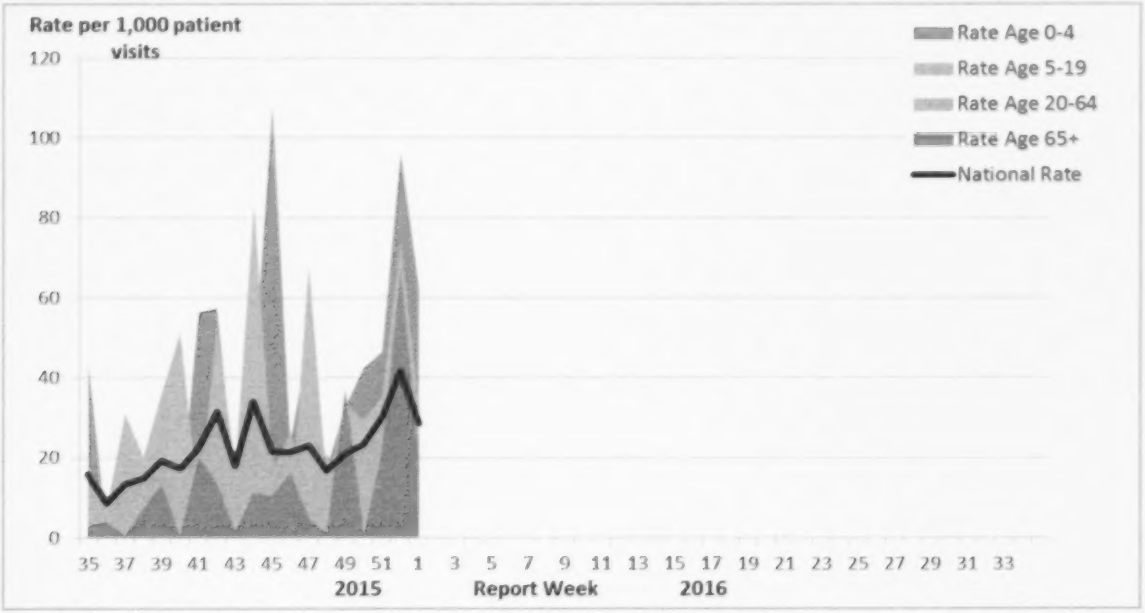
[1]Table 1 includes specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported.
[2]Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections.
[3]UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.

For data on other respiratory virus detections see the Respiratory Virus Detections in Canada Report on the Public Health Agency of Canada website.

Influenza-like Illness Consultation Rate

The national ILI consultation rate decreased from the previous week from 41.5 per 1,000 patient visits in week 52, to 28.4 per 1,000 patient visits in week 01. In week 01, the highest ILI consultation rate was found in those 0-4 years (62.5 per 1,000) of age and the lowest was found in the ≥65 years age group (Figure 4).

Figure 4 – Influenza-like illness (ILI) consultation rates by age group and week, Canada, 2015-16

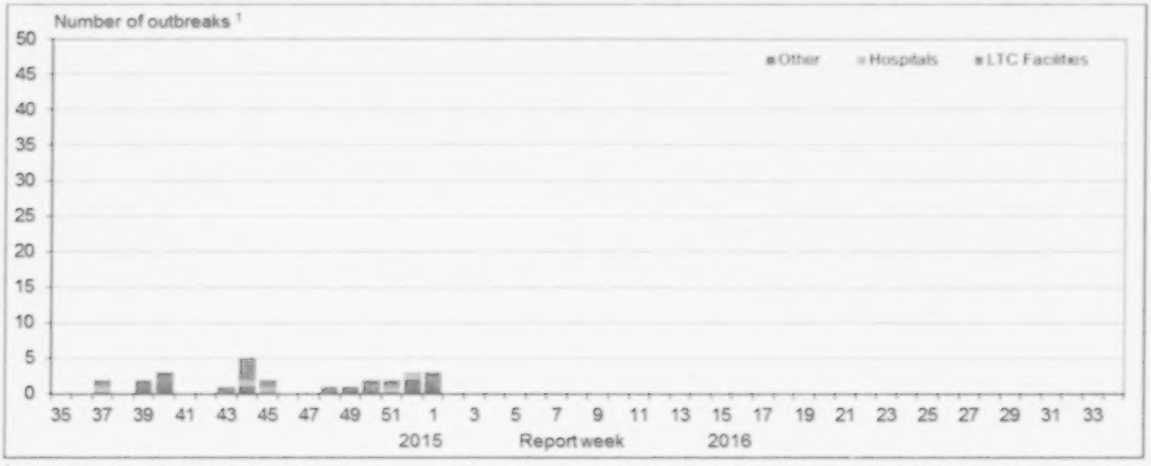


Delays in the reporting of data may cause data to change retrospectively. In BC, AB, and SK, data are compiled by a provincial sentinel surveillance program for reporting to FluWatch. Not all sentinel physicians report every week.

Influenza Outbreak Surveillance

In week 01, three new laboratory confirmed influenza outbreaks were reported. Two outbreaks were reported in long-term care facilities (LTCF) and one was due to influenza A. The other outbreak was reported in a institutional or community setting. To date this season, 36 outbreaks have been reported (17 of which occurred in LTCFs). In comparison, at week 01 in the 2014-15 season, 601 outbreaks were reported (471 of which occurred in LTCFs) and in the 2013-14 season, 34 outbreaks were reported (28 of which occurred in LTCFs).

Figure 5 – Overall number of new laboratory-confirmed influenza outbreaks by report week, Canada, 2015-2016



[1]All provinces and territories except NU report influenza outbreaks in long-term care facilities. All provinces and territories with the exception of NU and QC report outbreaks in hospitals. Outbreaks of influenza or influenza-like-illness in other facilities are reported to FluWatch but reporting varies between jurisdictions. Outbreak definitions are included at the end of the report.

Sentinel Hospital Influenza Surveillance

Paediatric Influenza Hospitalizations and Deaths

In week 01, sixteen hospitalizations were reported by the the Immunization Monitoring Program Active (IMPACT) network (Figure 6). Eight hospitalizations were due to influenza A(H1N1) (50%).

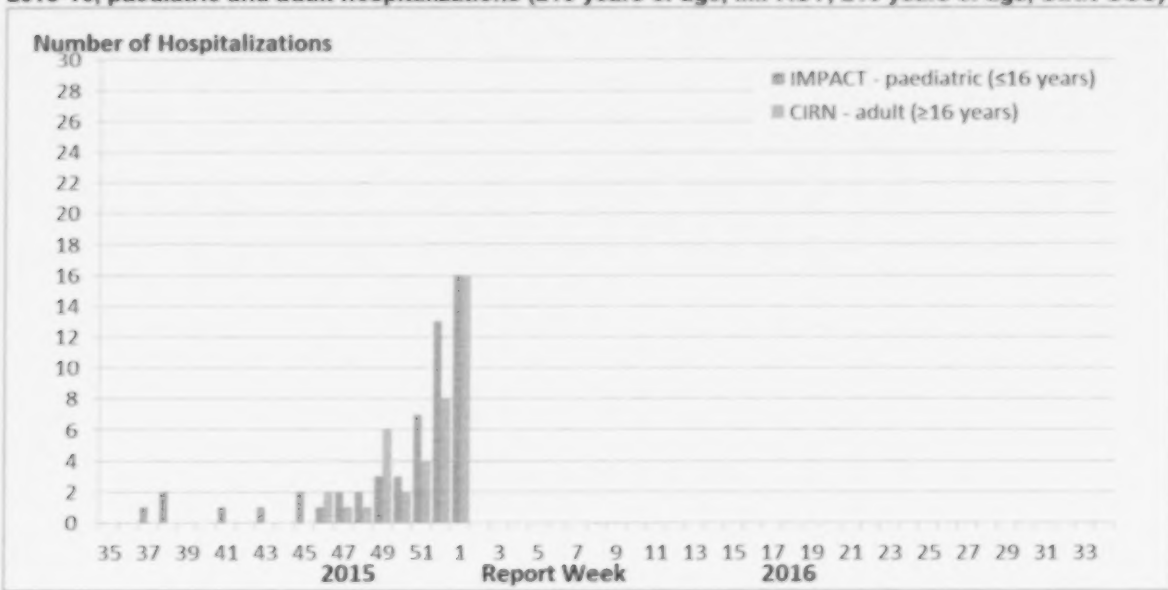
To date this season, 54 laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalizations have been reported by the IMPACT network. Forty-three hospitalized cases were due to influenza A and eleven cases were due to influenza B. The majority of hospitalized cases were among children aged 2-4 years (53%). Additionally, not included in Table 2 and Figure 6, two cases were due to co-infections of influenza A and B. To date, seven intensive care unit (ICU) admissions and less than five influenza-associated deaths have been reported.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Table 2 – Cumulative numbers of peadiatric hospitalizations (≤16 years of age) with influenza reported by the IMPACT network, Canada, 2015-16

Age Groups	Cumulative (30 Aug. 2015 to 9 Jan. 2016)				
	Influenza A				Influenza B
	A Total	A(H1) pdm09	A(H3)	A (UnS)	B Total
0-5m					
6-23m	Data suppressed due to small values				
2-4y					
5-9y					
10-16y					

Figure 6 – Number of hospitalized cases of influenza reported by sentinel hospital networks, by week, Canada, 2015-16, paediatric and adult hospitalizations (≤16 years of age, IMPACT; ≥16 years of age, CIRN-SOS)



Adult Influenza Hospitalizations and Deaths

In week 01, sixteen hospitalizations were reported by the Canadian Immunization Research Network Serious Outcome Surveillance (CIRN-SOS),up from eight hospitalizations reported in week 52 (Figure 6). The majority of hospitalizations were in adults ≥65 years of age (63%) and due to influenza A (63%).

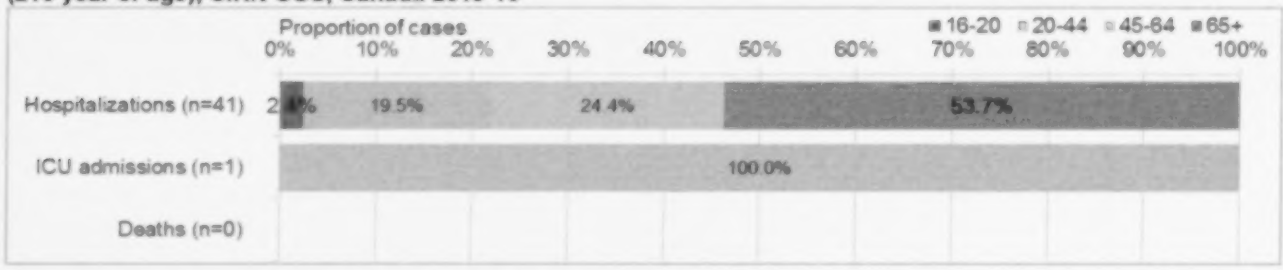
To date this season, 41 laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations have been reported by CIRN-SOS. The majority of hospitalized cases were due to influenza A (78%) and were among adults ≥65 years of age (54%). One intensive care unit (ICU) admission has been reported. No deaths have been reported.

Note: The number of hospitalizations reported through CIRN-SOS represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Table 3 – Cumulative numbers of adult hospitalizations (≥16 years of age) with influenza reported by the CIRN-SOS, Canada, 2015-16

Age groups (years)	Cumulative (1 Nov. 2015 to 9 Jan. 2016)					
	Influenza A				B	Total Influenza A and B
	A Total	A(H1) pdm09	A(H3)	A(UnS)	Total	# (%)
16-20	1	1	0	0	0	1 (2%)
20-44	4	1	0	3	4	8 (20%)
45-64	8	0	1	7	2	10 (24%)
65+	19	1	7	11	3	22 (54%)
Total	32	3	8	21	9	41
%	78%	9%	25%	66%	22%	100%

Figure 7 – Percentage of hospitalizations, ICU admissions and deaths with influenza reported by age-group (≥16 year of age), CIRN-SOS, Canada 2015-16

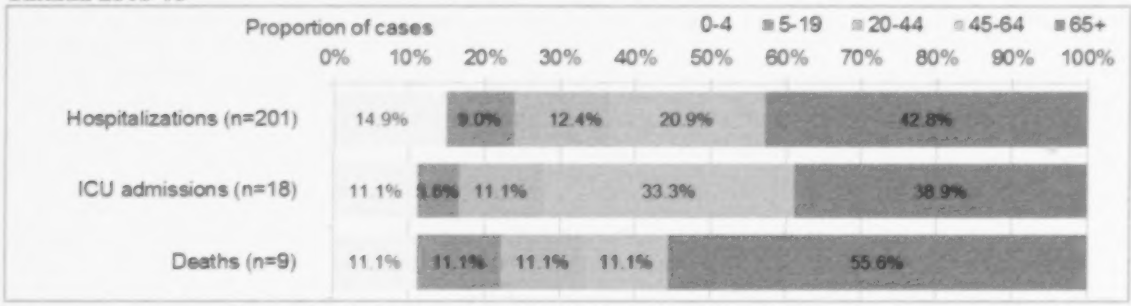


Provincial/Territorial Influenza Hospitalizations and Deaths

In week 01, 40 hospitalizations have been reported from participating provinces and territories*. The majority of hospitalizations were in adults ≥65 years of age (30%); however, the 0-4 age group and 45-64 age group followed closely representing 28% and 25% of hospitalizations respectively. Influenza A(H1N1) accounted for 60% of hospitalizations and among influenza A(H1N1) hospitalizations, nine (38%) were among children aged 0-4.

Since the start of the 2015-16 season, 201 laboratory-confirmed influenza-associated hospitalizations have been reported. One hundred and seventy-six hospitalizations (88%) were due to influenza A and twenty-five (12%) were due to influenza B. Among cases for which the subtype of influenza A was reported, 53% (40/96) were influenza A(H1N1). The majority (43%) of hospitalized cases were ≥65 years of age. Eighteen ICU admissions and ten deaths have been reported.

Figure 8 – Percentage of hospitalizations, ICU admissions and deaths with influenza reported by age-group, Canada 2015-16



* Note: Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, and QC. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not distinguished among hospital admissions reported from Ontario. Data may also include cases reported by the IMPACT and CIRN-SOS networks. The number of new influenza-associated hospitalizations and deaths reported for the current week may include cases from Ontario that occurred in previous weeks, as a result of retrospective updates to the cumulative total. It is important to note that the hospitalization or death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting.

See additional data on Reported Influenza Hospitalizations and Deaths in Canada: 2011-12 to 2015-16 on the Public Health Agency of Canada website.

Influenza Strain Characterizations

During the 2015-16 influenza season, the National Microbiology Laboratory (NML) has characterized 156 influenza viruses [86 A(H3N2), 39 A(H1N1) and 31 influenza B].

Influenza A (H3N2): When tested by hemagglutination inhibition (HI) assays, eight H3N2 virus were antigenically characterized as A/Switzerland/9715293/2013-like using antiserum raised against cell-propagated A/Switzerland/9715293/2013.

Sequence analysis was done on 78 H3N2 viruses. All viruses belonged to a genetic group for which most viruses were antigenically related to A/Switzerland/9715293/2013.

A/Switzerland/9715293/2013 is the A(H3N2) component of the 2015-16 Northern Hemisphere's vaccine.

Influenza A (H1N1): Thirty-nine H1N1 viruses characterized were antigenically similar to A/California/7/2009, the A(H1N1) component of the 2015-16 influenza vaccine.

Influenza B: Twenty influenza B viruses characterized were antigenically similar to the vaccine strain B/Phuket/3073/2013. Eleven influenza B viruses were characterized as B/Brisbane/60/2008-like, one of the influenza B components of the 2015-16 Northern Hemisphere quadrivalent influenza vaccine.

The recommended components for the 2015-2016 northern hemisphere trivalent influenza vaccine include: an A/California/7/2009(H1N1)pdm09-like virus, an /Switzerland/9715293/2013(H3N2)-like virus, and a B/Phuket/3073/2013 -like virus (Yamagata lineage). For quadrivalent vaccines, the addition of a B/Brisbane/60/2008-like virus (Victoria lineage) is recommended.

The NML receives a proportion of the influenza positive specimens from provincial laboratories for strain characterization and antiviral resistance testing. Characterization data reflect the results of haemagglutination inhibition testing compared to the reference influenza strains recommended by WHO.

Antiviral Resistance

During the 2015-16 season, the National Microbiology Laboratory (NML) has tested 152 influenza viruses for resistance to oseltamivir and 151 influenza viruses for zanamivir. All viruses were sensitive to zanamivir and oseltamivir. A total of 113 influenza A viruses (99%) were resistant to amantadine.(Table 4).

Table 4 – Antiviral resistance by influenza virus type and subtype, Canada, 2015-16

Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	79	0	79	0	86	85 (98.8%)
A (H1N1)	40	0	39	0	28	28 (100%)
B	33	0	33	0	NA[1]	NA[1]
TOTAL	152	0	151	0	114	113

[1]NA: Not Applicable

International Influenza Reports

World Health Organization influenza update
World Health Organization FluNet
WHO Influenza at the human-animal interface
Centers for Disease Control and Prevention seasonal influenza report
European Centre for Disease Prevention and Control - epidemiological data
South Africa Influenza surveillance report
New Zealand Public Health Surveillance
Australia Influenza Report
Pan-American Health Organization Influenza Situation Report

FluWatch Definitions for the 2015-2016 Season

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

Influenza-like-illness (ILI): Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

ILI/Influenza outbreaks

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Note that reporting of outbreaks of influenza/ILI from different types of facilities differs between jurisdictions.

Influenza/ILI Activity Levels

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* ;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI*;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

** More than just sporadic as determined by the provincial/territorial epidemiologist.*

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Government of Canada Influenza webpage under Weekly influenza reports.

Ce rapport est disponible dans les deux langues officielles.